CASSIDIAN

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AN EADS NORTH AMERICA COMPANY

CASSIDIAN COMMUNICATIONS
Platform ALI Retrieval Functionality/

FCC Meeting
Tuesday 24Sept13

Jeff Wittek, Chief Strategic Officer

Jeroen de Witte, Chief Technical Officer

CRITICAL MATTERS™

CASSIDIAN

AGENDA

- Corporate Overview
- California Specifics
- Product Functionality WRT ALI
- Questions & Answers
  - Needed Follow-up

CASSIDIAN COMMUNICATIONS /

- Founded in 1968
- US Based in Temecula, CA
- Over 30 years in Public & Private Safety
- Over 4,000 call center installations
- Over 500 employees worldwide
  - 352 U.S. & 142 Canadian employees
- Serving over 200 million US Citizens
- Field Service, Project Management, Training, Sales and Sales Engineering staff located throughout the North America

OUR **EVOLUTION /**

1968
PEI is founded
Telephone Dispatch Product Launched

2006
Acquires Dialogic Communications Corporation
Adds Mass Notification Solution

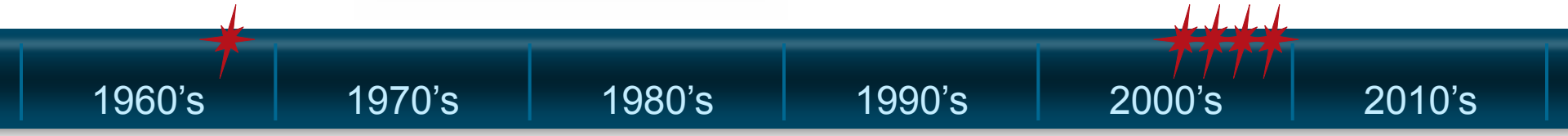
2006
Acquires CML Emergency Services Inc.
Adds Call Center Applications and Console

2007
Acquires Sigma Communications, L.L.C.
Plus Emergency Notification

2007
Acquires Tel-Control Inc
Plus Hosted 911 Services

2008
Acquired by EADS North America

2009
EADS P25 Land Mobile Radio unit integrated into portfolio
Adds P25 Land Mobile Radio



OUR **LOCATIONS** /

OUR BUSINESS **FOCUS** /

- Mission Critical Public Safety and DoD communications systems
  - P-25 radio
  - LTE devices and applications
  - Computer Telephony Integration (CTI) and desktop processing
  - i3 Emergency Services IP Network (ESInet)
  - Emergency Notification Systems (ENS)
  - Management Information Systems (MIS) & analytics
  - Computer Aided Dispatch (CAD)
  - Graphical Information Systems (GIS)
  - Logging Recording (DLR)
  - Services
    - Field Services: Solution Engineering, System Implementation, Project Management, Training
    - Managed Services: Hosting, Monitoring & Response, Patch Management, Disaster Recovery

OUR **MARKETS & LEADERSHIP /**

Largest provider of mission-critical networks in North America and globally

Approximately **60%** of 9-1-1 calls in the United States are received by our mission-critical solutions

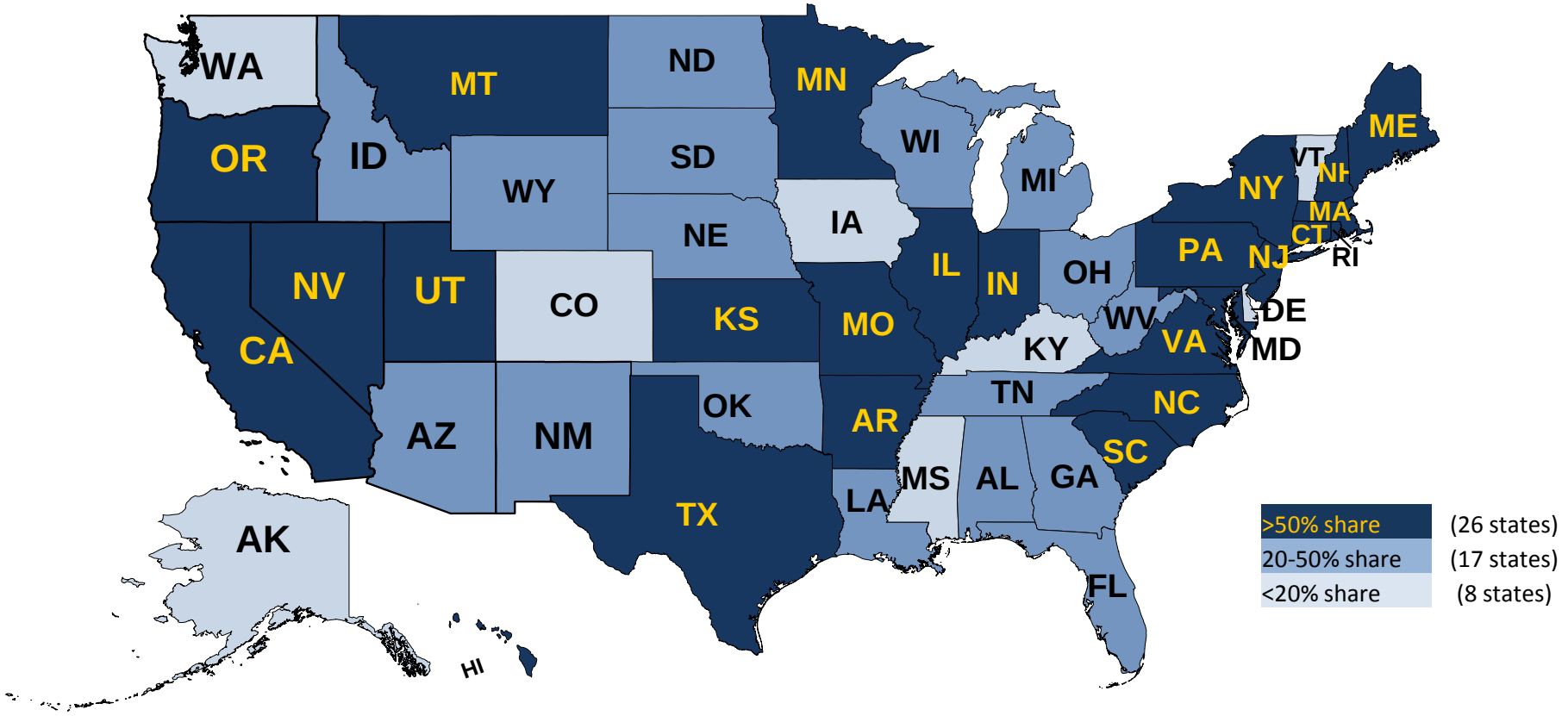
Alerting **millions** of people each year; serving public safety, Federal (civil and defense), private sector (20+ industries)

Digital trunked radio systems deployed in: over **200** public safety networks in **68** countries

OUR **9-1-1 SALES MODEL /**

- Channel Sales (> 95%)
  - National Partners: AT&T, Verizon, CenturyLink, Frontier, Motorola, General Dynamics
  - Regional Partners: Approximately 75 regional VARS (Carousel, Windstream, Ryan Public Safety Solutions, AK Associates)
- Responsibilities
  - Cassidian: Solution Engineering, Furnish, Preliminary Configuration (lines & positions), Channel Technical Training, Tier 3 Support
    - Optional Services: Installation Assistance, Customer Training, Project Management Assistance, Managed Services
  - Channel: Sale & Contract, Final Configuration, Install & Test, Project Management, Customer Training, Tier 1 & 2 Support and Maintenance

OUR CUSTOMER **BASE** /



>50% Market Share by PSAP (>3500 PSAPs)
>60% Market Share by Position (>8500 positions)

TODAY'S FOCUS - **NG9-1-1 /**

- Call Taking
  - Intuitive, configurable user interface
  - Fully integrated IP soft-switch
  - Hosted/managed solutions
  - Geo-diverse
- Mapping
  - Information on demand or automatically
  - Multiple maps/layers in a single workspace
- Management Information System (MIS)
  - Pre-formatted & ad hoc reporting
- Managed Services
  - Monitoring & Response; Anti-Virus; Patch Management; Disaster Recovery

"With VESTA/Sentinel 4, we are building the foundation we need for more tools and capabilities, like accepting text messages."

Wendy Sue
Communications Manager
El Cajon Police Department
El Cajon, CA

ALI FUNCTIONALITY OVERVIEW /

- Initial ALI Retrieval
  - Automated ALI retrieval functionality triggered by initial receipt of ANI
- Auto ALI Rebid
  - Highly configurable, automated rebid functionality used to update location data on wireless calls
- Manual ALI Rebid
  - Manual rebid functionality used to update location data on an “as needed basis”
- Manual ALI Query
  - Manual bid for select phone number

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CALIFORNIA SPECIFICS /

CASSIDIAN COMMUNICATIONS IN **CALIFORNIA /**

- 182 employees in Temecula, CA

- 296 (65%) of 454 PSAPs
  - CHP (24 sites)
  - LAPD
  - LA County Sheriff (22 sites)
  - San Diego PD/Fire
  - Long Beach PD/Fire
  - Santa Monica PD/Fire
  - Sacramento PD/County Sheriff
  - Oakland PD/Fire
  - Contra Costa Fire

SALES PARTNERS IN CALIFORNIA /

- AT&T
- Verizon
- Motorola
- Carousel

AUTO ALI REBID IN CALIFORNIA /

- State directed Vz, AT&T and others (?) to disable Auto ALI Rebid in the early 2000s (2003-2004?)
- Reason for the directive (according to VZ & AT&T)
  - Primary Reason: SAVE MONEY
    - AT&T charged 13 cents per dip (per tariff)
    - State estimated that disabling Auto Ali Rebid would save $7M annually
  - Secondary Reason: GPS handset issue
    - Rebids caused garbled and/or interruption of audio on VZ Wireless and Sprint wireless networks
- Auto ALI Rebid is still disabled today (VZ & AT&T)
  - Phase II obtained by manual rebid
  - AT&T will enable Auto ALI Rebid if specifically requested by the PSAP
  - State recently requested VZ enable Auto ALI Rebid at CHP for a one week trial.

Cassidian ALI Retrieval Functionality /

ALI OVERVIEW /

- PSAP CPE equipment interfaces to an ALI database in order to request ALI information for a 9-1-1 caller's telephone number
- CPE initiates 'ALI requests' to the ALI database under the following conditions:
  - For calls received on 9-1-1 trunks with valid ANI
  - A manual retransmit/rebid request issued by a 9-1-1 attendant position
  - An automated retransmit/rebid request as configured with the CPE
  - A manual ALI request

NENA ALI PROTOCOL /

- The interface between CPE Servers and ALI database is a defined protocol within NENA 04-001 Recommended Generic Standards for E9-1-1 PSAP Equipment
- It consists for four message types:
  - ALI Request (CPE to Database)
  - ACK/NAK on the ALI Request (Database to CPE)
  - ALI Text (Database to CPE)
  - Heartbeat (CPE to Database)
- This is an RS-232 9600 baud interface
- The interface consists of two links and when both links are operational, the PSAP equipment transmits each ‘ALI request’ on both links simultaneously. The response is typically received on the primary link.

NENA 04-001 SPECIFICATION /

3.3.1.4 ALI Requests

The ALI request consists of fourteen or sixteen ASCII characters sent in the following format:

<NPD><NXX><TN><POS><TRK><CHECK><CR> or

<NPA><NXX><TN><POS><TRK><CHECK><CR>

Note: If 10 or 20 Digit ANI - Refer to NENA 03-002 NENA Recommendation for the implementation of Enhanced MF Signaling, E9-1-1 Tandem to PSAP

Where:

NPA	Three digits given by the tandem office and used by the ALI database to identify the caller's area code
NPD	One digit given by the tandem office and used by the ALI database to identify the caller's area code
NXX	Three digits given by the tandem or end office MF tones to identify the caller's Telco exchange
TN	Four digits given by the tandem or end office MF tones to identify the caller's Directory number
POS	Two digits given by the PSAP equipment to identify the position associated with the request. Range 00 to 99 (decimal). For requests that occur prior to answering a call it is desirable that this value be 00. For requests that occur after answering a call (including Repeat, Manual and Test ALI requests) it is desirable that this value be the number of the position associated with the request.

NENA 04-001 SPECIFICATION /

TRK	Two digits given by the PSAP equipment to identify the trunk number over which the call was received. Range 00 to 94 (decimal) for automatic lookup and 95 to 99 (decimal) for special lookups. (See section 3.3.2 for more details). In order that ALI data-bases be able to report accurate call accounting it is desirable that special lookups use the following trunk numbers: 97 = Repeat ALI (used for ALI requests subsequent to answering a 9-1-1 call). 98 = Manual ALI (used when the operator requests ALI based on a manually entered ANI, not necessarily related to a received call). 99 = Test ALI (used for verification of operational ALI system, typically using a pre-defined ANI). This shall not be a result of receiving a Test call on a 9-1-1 Trunk.
CHECK	One digit checksum given by the PSAP equipment to verify the integrity of the message. The value of this digit is calculated such that when it is added to the sum of the previous digits, the total sum is evenly divisible by 8.
CR	Carriage Return character (hex 0D) inserted by the PSAP equipment to signal the end of the request

NENA 04-001 SPECIFICATION /

3.3.1.6 'ALI text' message

The ALI database returns an 'ALI text' message with the following format:

<STX><TYPE><POS><TEXT><ETX>

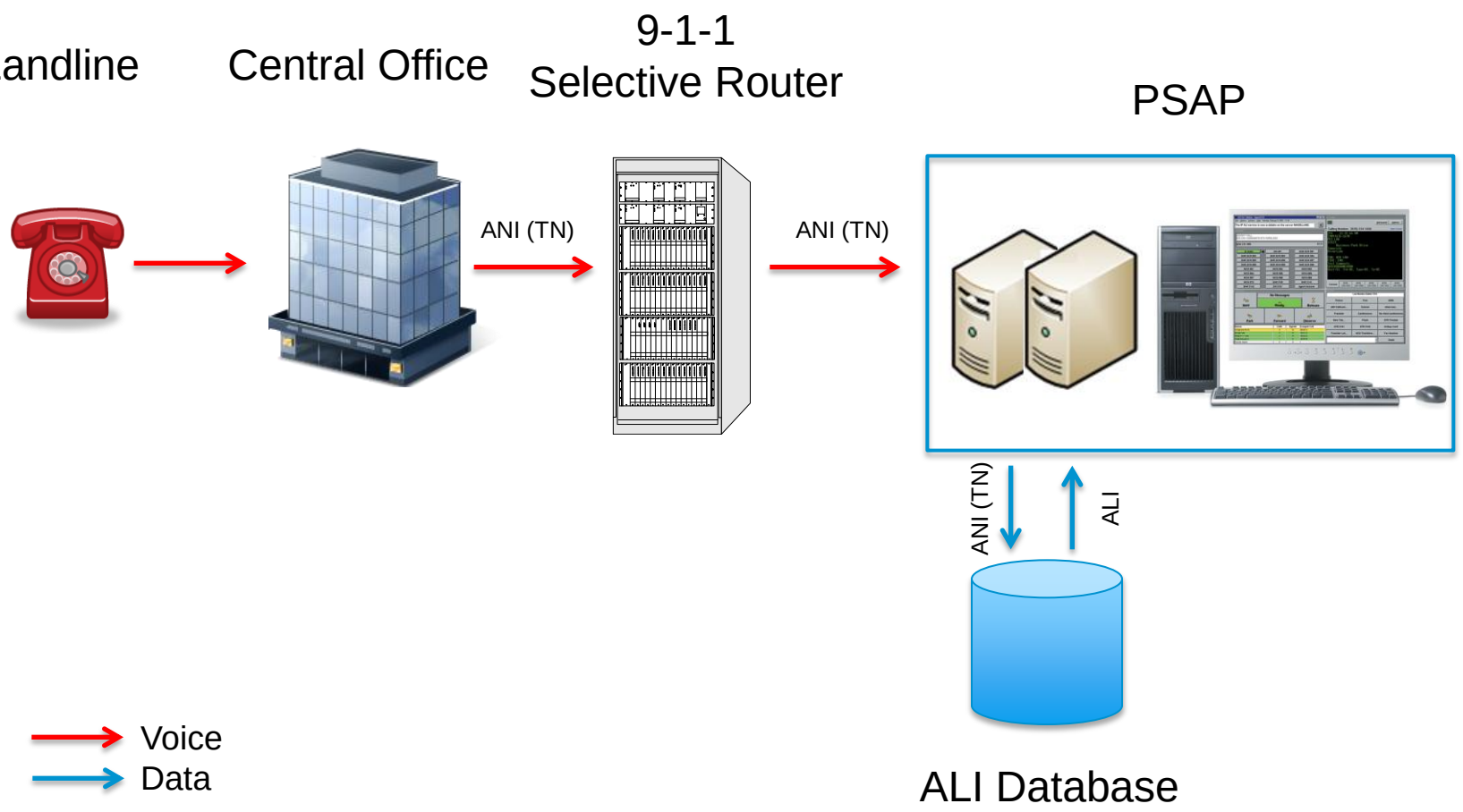
Where:

STX	One character (hex 02) which represents a 'start of message' signal
TYPE	One digit message type as described below assigned by the ALI database
POS	Two digit position number as received in the POS field of the ALI request
TEXT	Up to 511 characters, as formatted by the telephone company (512 characters are not supported by some CRT's or Terminals).
ETX	One character (hex 03) which represents an 'end of message' signal

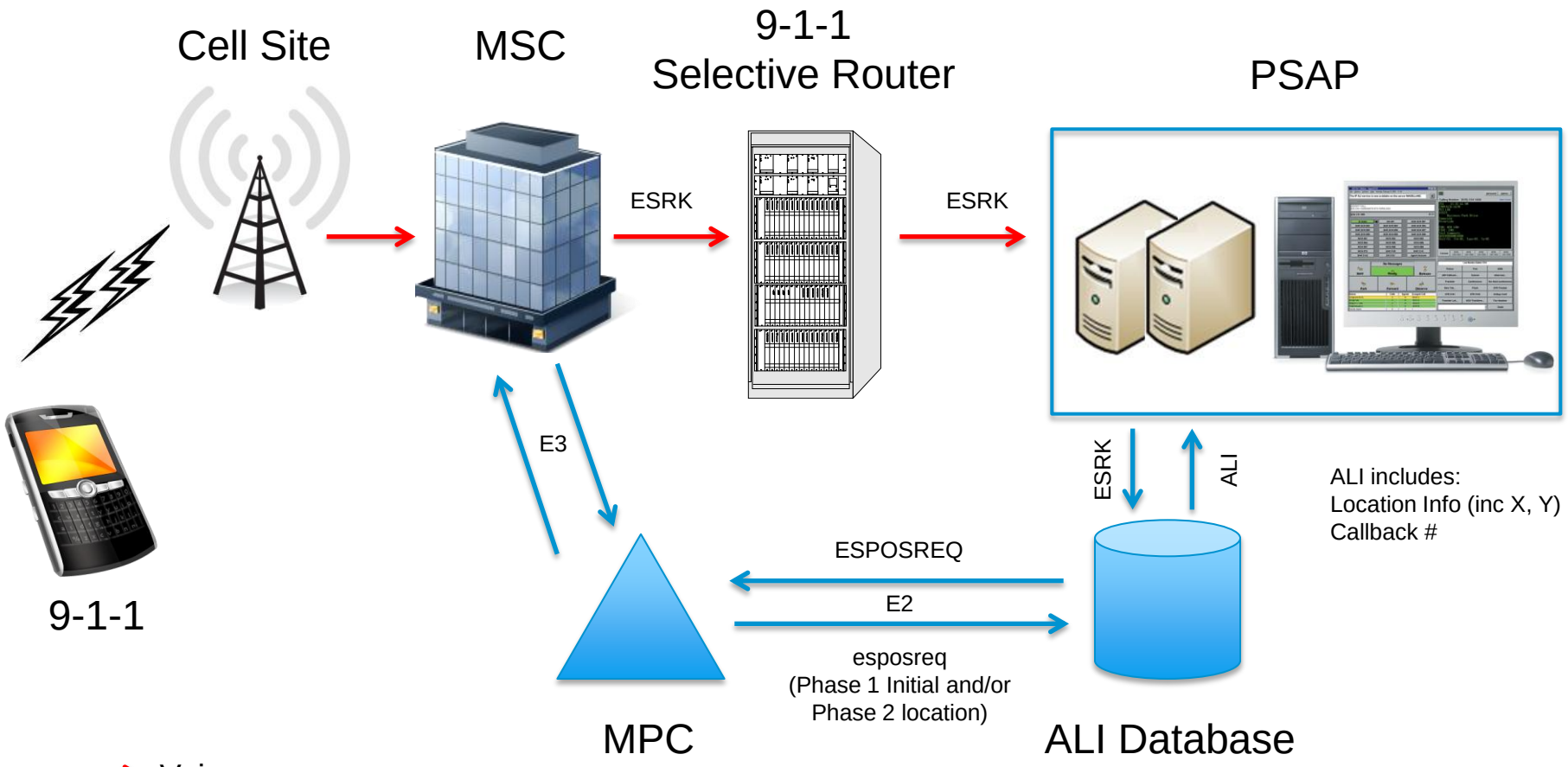
TYPE designations:

1 (hex 31) Data retrieved, only one path available
2 (hex 32) Data retrieved, both paths operational
3 (hex 33) Broadcast message from ALI database (text may or may not be included)
5 (hex 35) Broadcast message from ALI database indicating host going out of service
9 (hex 39) No address information found message. Text portion of message is of the form "NPA-NXX-TN No Record Found"

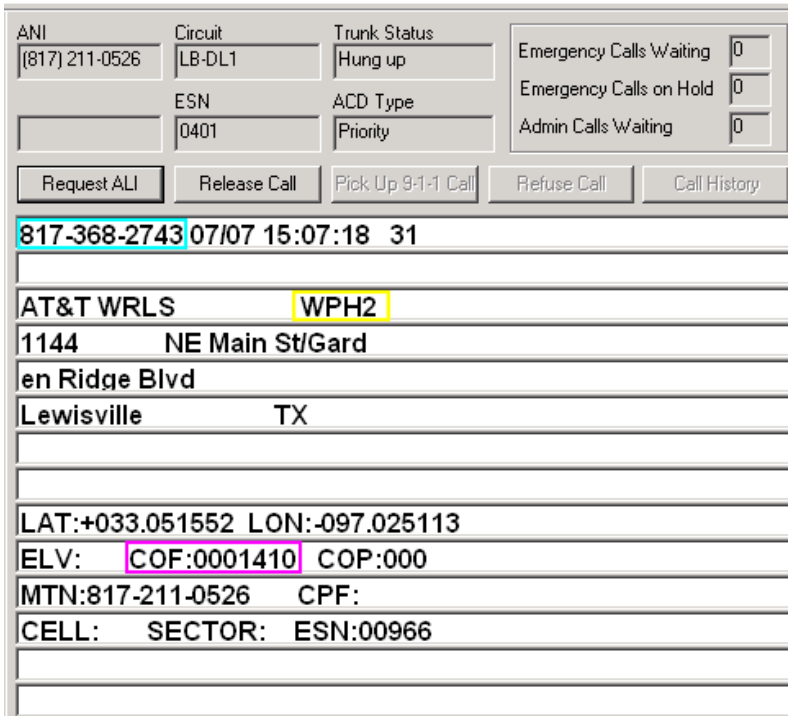
WIRELINE ALI PROCESSING /



WIRELESS ALI PROCESSING / (NCAS PHASE 2)



TYPICAL WIRELESS ALI DISPLAY /



ANI – Currently for Wireless calls the ANI is the phone number associated with the PSAP to which the call is routed. **This is not used for call back.**

Callback Number – found on the first line of the main ALI screen, beneath the "Request ALI" button.

Class of Service – WRLS indicates Phase 1 and provides cross street information for cell tower that routed the call.
WPH2 indicates a Phase 2 call and provides LAT/LON of the caller plus cross street information for the cell tower.

COF – Confidence factors vary widely among wireless carriers. The lower the number, the better

AUTOMATIC REBID PARAMETERS /

- Automated Rebid criteria is configurable within CPE
- Extract the COS from initial ALI record of call
- Based on specific COS (WPH1, WRLS, WPH2) system will automatically rebid
- Configurable parameters
  - By carrier
    - Rebid start time (1-99 seconds after initial ALI bid)
    - Rebid interval (1-99 seconds)
    - Max rebids (1-9 rebids)

- Note: FCC OET Bulletin 71 suggests Phase II rebid query timing of 30 seconds after call answer completion

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QUESTION & **ANSWER** /

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THANK **YOU** /

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